What is claimed is:

1.   A method for segmentation of a frame of image information including a plurality of spaced DNA spot images corresponding to a plurality of DNA spots, said image information including image intensity level information corresponding to said DNA spots, the method comprising the steps of:

(a)   storing the frame of image information in memory;

(b)   selecting a set of image information within said frame including a selected set of the DNA spot images;

(c)   generating a grid in memory, the grid including a plurality of spaced grid points corresponding to said selected set of DNA spot images, the grid points having a predefined relationship, each grid point including position information indicating the position of the grid point within said image frame;

(d)   segmenting the selected set of image information by selecting at least one image segment defining a segment area around a grid point and including a spot image; and

(e)   quantifying at least a portion of image information in said image segment to obtain image characteristic values for said image segment.

2.   The method of claim 1, wherein said segment area is a function of the spacing between said grid point and one or more neighboring grid points.

3.   The method of claim 1, wherein the image characteristic values include DNA information for a DNA spot corresponding to the DNA spot image in said image segment, said DNA information including gene expression values.

4.   The method of claim 1, wherein the frame of image information includes a plurality of pixels each having an intensity level, and wherein the step of quantifying includes: (i) sorting at least a portion of the pixel intensities within said image segment, (ii) selecting a portion of said pixels, and (iii) computing an

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image characteristic value for the selected pixel values as function of the intensities of at least a portion of the selected pixel values.

5. The method of claim 1, wherein the frame of image information includes a plurality of pixels each having an intensity level, and wherein the step of quantifying includes: (i) selecting a subset of said pixels in said image segment, (ii) computing a first image characteristic value as a function of at least a portion of the intensities of the selected pixel values, and (iii) computing a second image characteristic value as a function of intensities of at least a portion of pixels proximate said subset of pixels.

6. A software system for configuring a computer system comprising a processor, and memory, for segmentation of a frame of image information including a plurality of spaced DNA spot images corresponding to a plurality of DNA spots, said image information including image intensity level and intra frame position information corresponding to said DNA spots, the software system comprising program instructions for:

(a) storing the frame of image information in memory;

(b) selecting a set of image information within said frame including a selected set of the DNA spot images;

(c) generating a grid in memory, the grid including a plurality of spaced grid points corresponding to said selected set of DNA spot images, the grid points having a predefined relationship, each grid point including position information indicating the position of the grid point within said image frame;

(d) segmenting the selected set of image information by selecting at least one image segment defining a segment area around a grid point and including a spot image; and

(e) quantifying at least a portion of image information in said image segment to obtain image characteristic values for said image segment.

7.   The software system of claim 6, wherein said segment area is a function of the spacing between said grid point and one or more neighboring grid points.

8.   The software system of claim 6, wherein said image characteristic values include DNA information for a DNA spot corresponding to the DNA spot image in said image segment, said DNA information including gene expression values.

9.   The software system of claim 6, wherein the frame of image information includes a plurality of pixels each having an intensity level, and wherein the program instructions for quantifying include program instructions for: (i) sorting all the pixel intensities within said image segment, (ii) selecting a portion of said pixels, (iii) computing an image characteristic value for the selected pixel values as function of the intensities of at least a portion of the selected pixel value.

10.   The software system of claim 6, wherein the frame image information includes a plurality of pixels each having an intensity level, and wherein the program instructions for quantifying include program instructions for: (i) selecting a subset of said pixels in said image segment, (ii) computing a first image characteristic value as a function of at least a portion of the intensities of the selected pixel values, and (iii) computing a second image characteristic value as a function of intensities of at least a portion of pixels proximate said subset of pixels.